

WHAT IS CLAIMED IS:

1. Apparatus for scanning a beam of light in a digital image recorder, comprising:  
a curved writing surface;  
a rotatable shaft having a first reflective surface; and  
a light source emitting a beam of light directed to the reflective surface for reflection to the curved writing surface.
2. The apparatus of Claim 1, wherein the shaft comprises an air-bearing supporting shaft.
3. The apparatus of Claim 1, wherein the reflective facet is coupled with the shaft at a 45° angle with respect to a central axis of the shaft.
4. The apparatus of Claim 1, further comprising a second reflective facet coupled with the shaft.
5. The apparatus of Claim 1, wherein the shaft and facet continuously rotate through 360° revolutions.
6. The apparatus of Claim 1 further comprising a galvanometer operable to rotate the shaft through less than 360° in a first direction and rotate the shaft through less than 360° in a second direction, opposite the first direction.
7. The apparatus of Claim 1, wherein the facet further comprises a pentaprism operable to bend the light beam 90°.

8. Apparatus for scanning a beam of light in a digital image recorder, comprising:

a translation stage;

a translational cylinder slidably coupled to the translation stage and having an interior surface comprising a curved writing platen;

a rotatable shaft having a first reflective surface; and

a light source emitting a beam of light directed to the reflective surface for reflection therefrom to the curved writing platen.

9. The apparatus of Claim 8, wherein the translational cylinder and the rotatable shaft advance one line width, relative to the rotatable shaft, for each revolution of the shaft, in a direction parallel to the central axis of the cylinder.

10. The apparatus of Claim 9, wherein the line width is approximately equal to four and two tenths microns.

11. The apparatus of Claim 8, further comprising a vacuum for removably coupling a sheet of film with the writing platen.

12. The apparatus of Claim 8, further comprising a source of static electricity for removably coupling a sheet of film with the writing platen.

13. The apparatus of Claim 8, further comprising a line start detector operable to produce an electrical pulse in response to the passage of the beam of light over a knife edge, the line start detector and the knife edge coupled with the translational cylinder.

14. The apparatus of Claim 13, further comprising a collimating lens coupled with the translational cylinder between the knife edge and the detector and operable to collimate the beam of light to maintain a substantially constant diameter of the beam to facilitate precise measurement of the beam by the detector.

15. Apparatus for scanning a beam of light in a digital image recorder, comprising:

a curved writing surface;

a rotatable shaft having a first reflective surface;

a plurality of a light sources emitting a plurality of light beams;

a reflecting mirror having a plurality of facets thereupon, the facets each disposed at different angles with respect to a central axis, the facets operable to reflect the plurality of light beam parallel to an optical axis; and

thereby directing the plurality of reflected light beams to the reflective surface for reflection to the curved writing surface.

16. The apparatus of Claim 15 wherein the plurality of light sources comprises a plurality of lasers.

17. The apparatus of Claim 15 further comprising a translational stage coupled to the curved writing surface to slidably position the curved writing surface relative to the rotatable shaft.

18. The apparatus of Claim 17 wherein the curved writing surface and the rotatable shaft advance one line width, relative to the rotatable shaft, for each revolution of the shaft, in a direction parallel to the axis of the curved writing surface.

19. The apparatus of Claim 15 further comprising a line start detector operable to produce an electrical pulse in response to the passage of a beam of light over a knife edge, the line start detector and the knife edge coupled with the curved writing surface.